Thailand Taking off to New Heights

Kan Trakulhoon
Director & Chairman of the Management Advisory Committee

Mon., Mar. 19, 2018 at 10.00-12.00hr
@ Royal Jubilee Ballroom, Impact Muangthongthani
Thailand’s Performance Overview

- Thailand needs innovation to increase our competitiveness

Source: International Monetary Fund; World Economic Outlook Database (April 2017)
National Agenda: Moving Out From Middle Income Trap

Government view points on Thailand 1.0-4.0

**Thailand 1.0:** Focus on agricultural sector

**Thailand 2.0:** Focus on productivity enhancement in light industries

**Thailand 3.0:** Focus on labor- and heavy-machinery intensive production

**Thailand 4.0:** Focus on technology and innovation to add product & service value

[www.boi.go.th/upload/content/TIR_Jan_32824.pdf](http://www.boi.go.th/upload/content/TIR_Jan_32824.pdf)

Transformative Shift in Thailand 4.0

Traditional Farming → Smart Farming
Traditional SMEs → Startup
Traditional Services → High Value Service
Unskilled Labors → Knowledge worker/High Skilled Labors
Buy Technologies → Develop Technologies

Source: THAILAND BOARD OF INVESTMENT, www.boi.go.th
Investment in S-Curve Industries Will Be Granted Privileges and Tax Incentives

10 Targeted Industries: Mechanism to Drive Economy for the Future

New Growth Engine (S-Curve)

1st S-Curve
- Next-Generation Automotive
- Biofuels and Biochemical
- Smart Electronics
- Food for The Future
- Affluent Medical and Wellness Tourism

New S-Curve
- Aerospace
- Medical Hub
- Agricultural and Biotechnology
- Automation and Robotics
- Digital Economy

- Medical Hub
- Aerospace
- Biofuels and Biochemical
- Smart Electronics
- Next-Generation Automotive
- Food for The Future
- Affluent Medical and Wellness Tourism
- Agricultural and Biotechnology
- Automation and Robotics
- Digital Economy
Research and Development Expenditure (% of GDP)

% R&D Expense per GDP

- USA: 2.79%
- Germany: 2.87%
- England: 1.70%
- Russia: 1.13%
- South Korea: 4.22%
- Japan: 3.29%
- China: 2.07%
- Malaysia: 1.30%
- Thailand: 0.78%
- Argentina: 0.59%

Thailand needs Much More Investment in R&D

Targeted future R&D investments in the private and government sectors

- BOI Privileges for R&D and Innovation Investment
- Competitiveness Fund
- Startup Ecosystem
- Economic Zone for Innovation
  - Food Innopolis
  - Science Park
  - EECi
- 300% Tax Exempt of R&D and Innovation Cost
- Spearhead Innovate Thailand
- Ease of Doing Innovation Business
- Talent Mobility
- Smart Visa

% R&D Expenditure per GDP

Note: Figures since 2560 are forecasted. Source: IMD 2017 and STI, 2018.
Thailand needs More Researchers

Increase in Research and Development Workforce

<table>
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<tr>
<th>Year</th>
<th>Private Sector</th>
<th>State Enterprises, Educational Institutions and non-profit organizations</th>
<th>Total Personnel</th>
<th>Population of Thailand as of 2016: 65,931,550</th>
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Targeted Research and Development Workforce Year 2021

25.0 : 10,000 personnel

Number of research and development personnel in the private sector provided by STI. Number of research and development personnel in government sector, higher education, state enterprises, non-profit organizations provided by the National Research Council of Thailand. Population of Thailand as of 2016 from Department of Provincial Administration Ministry of Interior.
**Goal: Increasing Researchers to serve S-Curve Industries**

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<tr>
<th>Target Industries</th>
<th>Personnel requirements Science and Technology (person per 5 years)</th>
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*Note: The number of personnel requirements per 5 years is presented. The first S-Curve and new S-Curve are listed for comparison.*

@SCG 2018
20 year Research and Innovation Strategy

Spearhead Research & Innovation Program (2017-2036)

Research and Innovation Budget Plan
20 year Research and Innovation Strategy

Strategy 1
Research and Innovation for Economic Stability

Strategy 2
Research and Innovation for Social and Environmental Development

Strategy 3
Research and Innovation for the Creation of Basic Knowledge

Strategy 4
Development of Research and Innovation Eco-system

Integration of Strategic Program for the Promotion of Research and Innovation

Spearhead Research and Innovation

Source: 20 year Research and Innovation Strategy (2017-2036 National Research and Innovation Policy Council)
## Innovation Index 2018

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## Innovation Index 2018

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Innovation Index 2018

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Innovation Ecosystems for the Future
create innovation with speed, quality and affordability

- Eastern Economic Corridor Innovation (EECI)
  New growth hubs to drive innovation

- Open Innovation
  Gateway to connect & innovate

- R&D Consortium
  Select right target for driving RD to commercialization

- Technology Startup
  Support and encourage startup growth ecosystem

“Innovation Ecosystems”
Eastern Economic Corridor Innovation (EECI)

A comprehensive innovation ecosystem through research and innovation

The government is developing new growth hubs by starting with the Eastern Economic Corridor (EEC)

Source: Ministry of Science and Technology, Ministry of Industry
Open Innovation

Create ecosystem to speed up the innovation

- Access to know-how & new ideas
- Becoming ‘the partner of choice’
- Faster time to market
- Increase revenues
SCG Open Innovation Center: Gateway to Connect and Innovate

Open since July 2017

- **Exhibition area** to inspire partners (Example of 50 innovative projects)
- **Lab facilities** for ideas demonstration
- **Meeting facilities** to connect the world
- **Technology Bridging Platform** to exchange idea and technology

Contact: openinnovation@scg.com

*Thailand Science Park, INC 2, Tower D, FL 9*
R&D Consortium will lift up the whole value chain competitiveness

Objectives:
- Industrial collaboration to initiate new research from actual demands
- Universities and Research Institutes deliver solutions

Benefits:
- Rapid access to new technologies
- R & D commercialization
- Uplift of whole value chain

Source: Public-Private Collaborative Committee on Innovation and Digitalization (D1)
Example of R&D Consortium: Food Innopolis

Global food innovation hub focusing on innovation for food industry

Source: http://foodinnopolis.or.th/en/home/
National Science Technology and Innovation Policy Office
Startup Thailand

A national startup promotion platform to support and encourage startup growth ecosystem

Startup Thailand’s 9 Startup Sectors

- HealthTech
- IndustryTech
- PropertyTech
- EnviTech
- Lifestyle
- Business Service
- FinTech
- TravelTech
- EdTech

SCG Focuses R&D And HVA Products/Services

R&D Spending

HVA Sales

R&D and Product Design Team

*Includes recent acquisition of Norway Group (Norway): 50 R&D staffs (10 Ph.D.)
SCG Collaborative Network for Innovation

Collaborative Project: 589
(18% of total projects, 44% of total expenses)

Domestic partner: 390
International partner: 199

- Arkema
- Certech
- Dini Engineering
- EMPA, Swiss Federal Laboratories for Materials Science and Technology
- Federico II University of Naples
- Humborg Innovation GmbH
- Imperial College
- Inventia AB
- Martin Luther U.
- More research
- Norner Inno.
- OXFORD
- Ploixa Limited
- Polymer Insitute Brno,
- Technique University of DAMSTADT
- Technical University of Munich
- University of Leeds

- Beijing University of Chemical Tech.
- MCN Material Technologies
- Tianjin U.
- Zhejiang U.

Data from R&D report 2012-2016
Collaborative Research with Leading Universities

BLOOM
The room for living

COROLLA
3D Breathable Facade

Berkeley
UNIVERSITY OF CALIFORNIA

3-D printing technology using cement polymer

SCG-University of Oxford Centre of Excellence

24 patents
Nano Materials & Catalysis

12% of all Oxford’s IP was originated

40 publications in leading international journals

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Thank You